Appendix B: Randolph WUI Project Resource Protection Measures and Standard Management Requirements (SMRs)

Terrestrial Wildlife Protection Measures:

1. Retain three of the largest (15 inch dbh or greater) snags per acre. Snag retention would be emphasized on the interior of units where it would not affect the direct FS/private land interface or along logical suppression access points or control lines.
2. Retain largest available down logs (15 inch diameter or greater and at least 10 feet long). Crushing of the large down logs with machinery would be avoided. Large downed logs retention would be emphasized on the interior of units where it would not affect the direct FS/private land interface or along logical suppression access points or control lines.
3. If any TES species (Federally threatened, endangered, proposed, or Forest Service sensitive species) previously unknown in the project area are detected or found nesting within 0.25 miles of project activities, appropriate mitigation measures would be implemented based on input from the aquatics biologist, botanist, and/or wildlife biologist. Measures can include, but are not limited to, flagging and avoiding a plant site, implementing a species specific LOP, or designating a protected activity center.

Sensitive Plant Protection Measures:

1. Identified fens and sensitive plant sites shall be flagged and avoided. A 25 foot buffer has been mapped around the fen and spring complex between units 4 and 5. Another 25 foot buffer has been mapped around the fen in unit 1. These areas should remain a "Tractor Keep Out" area. Leave all trees of every size with roots bordering the fen. Hand work to take out small tree thickets with a DBH of less than 8 inches as long as the trees adjacent to the fen are left in place to maintain the border around the fen. No piles shall be placed on riparian vegetation especially and within the 25 foot buffer around the fen to meet the minimum protection of this special aquatic feature boundary of the fen-spring complex where soils are wet. No piles shall be burned within the fen-spring complex area and the 25 foot buffer.
2. Skid trail or heavy equipment crossings of ephemerally moist swales and floodplains should be minimized and can be designated per the Riparian Conservation Area Resource Protection Measures and project hydrologist.

Non-native invasive weeds:

1. The Weed Risk Assessment documents the results of weed surveys for the Randolph WUI Project. An "A" rated, noxious weed, musk thistle (*Carduus nutans*) has been found to be infesting the existing landing within Units 1 and 2, and the adjacent private parcel to the north of the units. No "B" rated noxious weeds were found to be occurring within the Randolph WUI project area. However, there were several instances where "C" rated noxious weeds such as cheatgrass was found in units 3, 4 and 5.
2. Follow Best Management Practices (BMP) for Project related Non-native Invasive Plant Control taken from "Preventing the Spread of Invasive Plants: Best Management Practices for Land Managers" Cal-IPC, to avoid contributing to the spread of non-native invasive plant species.

3. Pre-treat units 1 and 2, the known musk thistle infestations by hand removal, every year to work toward control in the project area, especially before any project work begins, to minimize the chances of the heavy equipment spreading the noxious weed seeds from infested to non-infested units.
4. The clean equipment clause should be enforced before heavy equipment is brought on site. (C6.35# – Cleaning of Equipment: Contractor shall ensure that all equipment that has operated

off roads in areas infested with noxious / invasive-exotic weeds, that is being moved onto National Forest Land is free of soil, weeds, seeds, vegetative matter or other debris that could hold or contain seeds.)

5. Heavy equipment should also be cleaned when it leaves units 1 and 2 where "A" rated noxious weeds are known to be present, before it is moved to non-infested units. Since units 1 and 2 are known to be infested, they should be processed after the currently non-infested units are treated.
6. If heavy equipment needs to be cleaned on site, after working in an infested area, before it moves to a non-infested area, then a "cleaning area" needs to be designated where tools, equipment and vehicles, would be cleaned. Since new infestation may arise from the washing of the equipment, the designated "cleaning areas" need to be mapped and entered into the Nris inventory database for future monitoring and control of noxious weeds. It is best to choose one site for the project area that is easy access and located within an already infested unit.
7. Cheatgrass, which is a "C"-rated noxious weed (not mapped) was found to be common in Unit 5. The botanist has comprehensive literature sources, which explain why underburning should be dropped from consideration in Unit 5. Cheatgrass has been found to be currently dominating vegetative cover in Unit 5 and would be spread with increasing density where underburned. Cheatgrass is a strong competitor in the postfire environment where it takes advantage increased resource availability and produces an abundant seed crop (Billings 1994, Keeley 2001, Young and Evans, 1978). A cheatgrass population may average around 1,000 plants per square foot prior to burning. The next season, surviving seed germinate and establish a density of about 1 plant per square foot. These plants are released from competition, and have more water and nutrients available to them. The cheatgrass plants in this sparse population can produce abundant tillers, each supporting many flowers, thus producing a large seed crop (Young, Evans, Eckert, Richards and Burgess, 1987). So, after the second or third season following a burn event, the dry cheatgrass cover is denser than before treatment. It appears on the NAIP imagery that the southwest side of Randolph Hill has burned before, and that is why there is a fairly dense cover of cheatgrass existing, today. Other vegetation on site, include widely spaced ponderosa pine trees and some patches of manzanita. Manzanita has also been proven to be a fire adapted species, whose seed remain viable for 100 to 300 years and are stimulated to sprout and increase density, in response to fire. Any benefit gained to reduce vegetative cover after a burn event, would be very short lived and result in a higher cover of flashy fuels within the first 3 to 5 years, post treatment.
8. Post treatment monitoring for noxious weeds should be carried out every year for three years after underburning or pile burning and longer. If noxious weeds are found to occur, monitoring and treatments shall continue until seed source has been exhausted and site has been clear for 5 years. If cheatgrass spreads, it cannot be controlled by pulling.

Cultural and heritage resources:

1. Cultural resources report documents the Section 106 compliance for the inventory and identification of cultural resources for the Randolph WUI proposed action. There are several cultural resources located within the area of potential effects (APE). Project actions within or near these APEs will require coordination between the archeologist and fuels officer. Project design measures to prevent effects to the APEs include flag and avoid areas, development of equipment keep out areas, limitations on vegetation treatment, and restrictions on pile placement application of prescribed fire. These coordinated measures are in the project record as Attachment 1.

Range allotment:

1. The Randolph WUI Project is taking place in the Nichols Canyon Allotment within a non-active portion of the allotment (Bonta pasture, see map in the Project Record). Care should be taken to avoid damaging existing range improvements (cattle guards, fences, water troughs, etc.) and the permittee should be included in notifications of operations going on within this allotment. See the range management specialist for permittee information.

Soils, Hydrology and Watershed Protection Measures:

SMR #	Unit	Concern	Activity Type	Includes Best Management (BMPs) and Resource Protection Measures (RPMs)	Responsible Person(s) *** Due Date
1	All Units	Aquatic Resources, Soils/ Hydrology	All	**Implement Best Management Practices (BMPs):** BMP practices are required to meet the regional policy and to be consistent with the provisions of the 1981 Management Agency Agreement between the California Central Valley Regional Water Quality Control Board (RWQCB) and the Forest Service as the designated Water Quality Management Agency (WQMA) on National Forest System Lands. The primary means of minimizing impact in this project area are site-specific BMPs and management requirements, unit layout, careful implementation and monitoring of BMP implementation. Some of the BMPs in this list are applied at the planning stage and therefore are not referenced directly in the SMRs below. 1.1 – Timber Sale Planning Process 1.2 – Timber Harvest Unit Design 1.3 – Determining Surface Erosion Hazard for Timber Harvest Unit Design 1.4 – Using Sale Area Maps and/or Project Maps for Designating Water-Quality Protection Needs 1.5 – Limiting the Operating Period of Timber Sale Activities 1.8 – Streamside Management Zone Designation 1.13 – Erosion Prevention and Control Measures During Timber Sale Operations 1.14- Special Erosion-prevention Measures on Disturbed Land 1.18 – Meadow Protection during Timber Harvesting 1.19 – Streamcourse and Aquatic Protection 1.20 – Erosion-control Structure Maintenance 1.21 – Acceptance of Timber Sale Erosion-control Measures before Sale Closure 1.25 – Modification of Timber Sale Contract 2.8 – Stream crossings 2.10 – Parking and Staging Areas 2.11 – Equipment Refueling and Servicing 2.13 – Erosion Control Plan	Aquatics Biologist, Hydrologist, Soil Scientist, TSA, Vegetation Officer *** As applicable prior to, during, and after all management activities

				5.1 – Soil-disturbing Treatments on the Contour 5.2 – Slope Limitations for Mechanical Equipment Operation 5.3 – Tractor Operation Limitation in Wetlands and Meadows 5.4 – Revegetation of Surface-disturbed Areas 5.5 – Disposal of Organic Debris 5.6 – Soil Moisture Limitations for Mechanical Equipment Operations 6.1 – Fire and Fuels Management Activities 6.2 – Consideration of Water Quality in Formulating Fire Prescriptions 6.3 – Protection of Water Quality from Prescribed Burning Effects 7.2 – Conduct Floodplain Analysis 7.3 – Protection of Wetlands 7.4 – Forest and Hazardous Substance Spill Prevention Control and Countermeasure Plan 7.8 – Cumulative Off-site Watershed Effects	
2	All Units	Aquatic Resources, Soils/ Hydrology	All	**Emphasis for Riparian Conservation Area (RCA) Protection:** Contract administrators and operators will be educated on the importance of minimizing impact while working within the RCA. Units with RCAs having known areas with restricted operations regarding sensitive sites will be reviewed with contract administrators and operators. Stream courses and their respective protection limits (Tractor Keep Out - TKO) are shown on the sale area map and/or are flagged or signed on the ground. In general, TKOs are measured 25-feet from riparian features, unless otherwise noted, and distance is based on the greatest distance from the following features: channel bank, wet soil type associated with a floodplain, spring or meadow, riparian vegetation, and steepened slope breaks adjacent to channel. Widths may be increased along incised channels and where the slope directly adjacent to the channel increases. TKOs will be increased where hydrologic features merge or drainage becomes complex, and may be signed with a special designation called "controlled access" areas. Areas with this designation follow requirements, such as entering perpendicular to the drainages within the control area and minimizing entries within or through the control areas. *BMPs: 1.1, 1.2, 1.4, 1.8, 1.18, 1.19, 5.3, 6.2, 7.2 and 7.3.*	Aquatics Biologist, Hydrologist, Soil Scientist, TSA, Vegetation Officer *** As applicable prior to, during, and after all management activities
3	15, 16	Soils/ Hydrology	Mechanical	**<u>Equipment Operations (Mechanical thinning and Grapple piling)</u>:** Mechanical thinning, to be completed with the use of tractors, masticators and grapple piling will utilize minimal equipment turning to result in the least amount of ground disturbance. **Uplands:**	Hydrologist, Soil Scientist, TSA, Vegetation Officer *** Contract Prep, Contract Layout, Implementation, Post Implementation

				Equipment will be used on slopes no greater than 30% with short pitches up to 200 feet on up to 35% slope. Short pitches over 35% slope may be agreed to on a site-specific basis, after appropriate interdisciplinary review. **<u>Equipment Operations (Grapple piling)</u>:** Fuel Piling: No type of natural or activity fuel piling (temporary or permanent) will occur within 25 feet of stream channels or meadows or within the 100-year floodplain. Piling may occur in the RCA outside of these restrictions. Where existing or approved landings occur in the RCA, piling of timber or fuels for storage or burning must be located outside of the TKO. **<u>Equipment and Stream Crossings</u>:** Equipment will not cross seasonal streams except at pre-approved designated crossings. All ephemeral stream channel crossings will be dry at the time of use. Seasonal and ephemeral stream crossings will be provided with Humboldt crossings, slash and other methods where needed to maintain the shape and form of the existing channel. These materials will be removed from the crossings when the crossing is no longer needed. **<u>Riparian Conservation Areas (RCAs)</u>:** Within RCAs, all equipment operations should be limited to slopes ≤ 20% if the slope is directly above, and runs continuously down to a stream channel. If the slope is > 20%, but does not slope directly into the creek, the 30% rule with no short pitches to 35% as stated in the paragraph above (regarding Uplands) should be followed. Do not track up and down drainage pathways and minimize all equipment movement through swales. When equipment is operating in the near stream zone (30-75 feet from the outside edge of the TKO), minimize ground disturbance with short perpendicular entries into the RCA. Back blade any berms created by equipment that could concentrate water within areas with topographically low relief (flat) areas. **Soil Dryness Criteria:** Dry soil is defined as soil when sampled from a specified depth below the surface and placed in the hand and squeezed, the hand shows no significant moisture stains and follows the dryness criteria, as follows: • Specific harvesting equipment restrictions relating to dry soil are as follows: 1) Equipment rated as low-ground-pressure, which is defined as equipment applying an average ground pressure of 8.0 or less pounds per square inch (PSI) design load, is restricted to roads until the soil is dry to a depth of 4 inches.	

				In other words, when saturated soil conditions are not present 2) Equipment rated as high-ground-pressure equipment which is defined as equipment applying an average ground pressure of 8.0 or greater pounds per square inch design load, is restricted to roads until the soil is dry to a depth of 10 inches. • Equipment will not operate over soils such as Aquolls, Borolls or Cryumbrepts-wet and will avoid areas with a high water table as provided through TKO designation. *BMPs 1.2, 1.8, 1.9, 1.13, 1.19, 5.2, 5.3, 5.6*	
4	15, 16	Soils/ Hydrology	Mechanical	**Grapple Piling:** Grapple operations will avoid pilling in swales and within TKO as described under SMR 3 No tractor piling will occur in the RCA except at pre-designated landings. *BMPs 1.9, 1.13, 1.19, 5.2, 5.3, 5.6*	
5	15, 16	Aquatic Resources, Soils/ Hydrology	Mechanical	**Tractor and Mechanical equipment Keep Out (TKO) requirements, All Mechanical Operations:** • **TKO Operations General**: In general, TKOs are measured based on the greatest distance from the following features: channel bank, wet soil type associated with a floodplain, spring or meadow, riparian vegetation, steepened slope break adjacent to channel. Widths may be increased along incised channels and where the slope directly adjacent to the channel increases. • **RCA:** Within the RCA, adjacent to perennial streams, seasonal drainages and special hydrologic features, a variable Tractor Keep Out (TKO) area will be provided based on hydrologic features, and under consultation with the aquatics biologist/ hydrologist/soil scientist during unit layout and contract administration. In general, these TKO areas are designated to be a minimum of 25 feet from a riparian feature, or channel bank for ephemeral systems. A minimum 25 foot TKO from riparian vegetation will be maintained. The TKO will be increased where hydrologic features merge or drainage becomes complex, where wet soils are present, or as needed to protect spring hydrology. Actual widths from a channel will increase if channels are deeply incised and where the slope to the channel steepens. Tractor operations will be excluded from the meadows according to the TKO identified in the field and as identified on the sale area maps. The TKO will be flagged on	Aquatics Biologist, Hydrologist, Soil Scientist, TSA, Vegetation Officer *** Contract Prep, Contract Layout, Implementation, Post Implementation

				the ground based on hydrologic features as described above. *BMPs: 1.2, 1.9, 1.13, 1.18, 1.21, 5.2, 5.3, 5.6.5.3, 5.6, 6.1, 7.2, 7.3 and 7.4*	
6	All Units	Aquatic Resources, Soils/ Hydrology	All	**<u>Wet Weather Operations</u>** **Intermittent and Ephemeral Stream Crossings (also see SMR 3)** Crossings will be designed to provide measures to pass flows, and may include extra protection measures, such as gravel, culverts or drainage controls when needed. Typically, the flow volume through these crossings is low and there is a low risk of significant precipitation during most of the operating period. Wet weather clauses are included to limit operations in inclement weather, when soils deform or compact, and road rutting and deformation become significant. Temporary crossings will be removed the same season they are installed and they will be removed prior to the onset of the rain/snow season. **Traffic Control During Wet Periods** Use of roads would be restricted to the dry season when roads are stable. BMPs 1.2, 1.19, 2.8, 2.10, 2.13, 5.1, 5.2, 5.3, 7.3, 7.8	Hydrologist, Soil Scientist, TSA, Vegetation Officer *** Implementation, Post Implementation
7	All Units	Aquatic Resources, Soils/ Hydrology	All	**Spill Prevention Control and Countermeasure Plan:** Have an approved Spill Prevention Control and Countermeasure plan. 1. Fuels and other toxic materials will be stored outside of riparian conservation areas and critical aquatic refuges. 2. Plan for appropriate equipment refueling and servicing sites during project planning and design. 3. Allow temporary refueling and servicing only at approved locations, which are well away from water or riparian resources, outside of RCAs. 4. Develop or use existing fuel and chemical management plans (for example, spill prevention control and countermeasures (SPCC), spill response plan, emergency response plan) when developing the management prescription for refueling and servicing sites. 5. Provide training for all personnel handling fuels and chemicals in their proper use, handling, storage, and disposal. 6. Avoid spilling fuels, lubricants, cleaners, and other chemicals during handling and transporting. 7. Spills must be immediately contained and spilled materials and/or contaminated soils must be properly disposed. An emergency spill kit adequate to contain spills that could result from onsite equipment	TSA, Vegetation Officer *** Contract Prep, Contract Layout, Implementation, Post Implementation

				must be at the project site at all times of equipment use. *BMPs: 1.1, 1.2, 2.10, 2.11, 2.13, 7.4*	
8	All Units	Aquatic Resources, Fuels Mgmt., Soils/ Hydrology, Vegetation Mgmt., Wildlife	All	**Ground cover requirements for all activities:** To protect against accelerated erosion and to maintain long-term soil productivity, the following guidelines should be applied during the planning and implementation of fuels treatments and vegetation management. **Downed Large Wood Requirements:** Maintain downed wood retention adequate to contribute to organic matter while attaining desired conditions. Retain large downed wood while meeting fuels objectives (small areas of heavier concentrations that are not continuous on the landscape). Crushing of logs with equipment will be avoided. Target down log levels post fuels treatments would be approximately 5 of the largest logs available per acre >10 feet long. • Should protection measures result in areas not attaining the large wood component while meeting downed wood requirements through smaller materials, incorporate burn prescription measures such as lining, and contract requirements to maintain existing downed logs (preference to spring-like burn prescription). Wood recruitment where trees are negatively affected within underburn units lacking in downed wood and in areas where snags are not limiting can be felled and left to add to large wood recruitment. • Downed Large Downed Wood in Riparian Area: Downed logs in contact with soils within the TKO or downed large woody debris in the 100-year floodplain of intermittent or perennial streams will not be removed. **Ground Cover – Monitoring:** The following are used as a general guide that will be practically implemented and assessed using random implementation monitoring and focused monitoring of areas of concern, through the BMPEP monitoring program. If the minimum effective soil cover requirements are not being met (i.e. ground cover requirements are not shown to be effective in controlling erosion) management practices should be reviewed and adjusted as needed to achieve soil cover objectives, and mitigation measures such as mulching or limbing of trees will be implemented as needed to maintain effective soil cover. *BMPs: 1.9, 1.13, 1.20, 1.21, 2.13, 5.4, 6.2, 6.3*	Fuels Officer, Hydrologist, Soil Scientist, TSA, Vegetation Officer, Wildlife Biologist *** Project Design, Contract Prep, Contract Layout, Implementation, Post Implementation

9	All Units	Aquatic Resources, Fuels Mgmt., Soils/ Hydrology, Vegetation Mgmt., Wildlife	All	**General Ground Cover Requirements:** **Ground Cover Requirements Outside of RCAs Post-Implementation** • On soils with low to moderate erosion hazard ratings (0-25% slope), maintain 45% ground cover. • On soils with high erosion hazard ratings (25-50 % slope), maintain 55% ground cover. • On soils with very high hazard ratings (greater than 50% slopes), maintain 70% ground cover. All areas disturbed from project implementation will be stabilized before the winter period or at conclusion of operations whichever is sooner. *BMPs: 1.9, 1.13, 1.20, 1.21, 2.13, 5.4, 6.2, 6.3* **Ground Cover Requirements Within the RCAs Post-Implementation:** Mulching will occur over bare ground created by management activities within the RCA with particular attention paid near the hydrologic feature. Upland areas of the RCA will meet the General Ground Cover requirements within the RCAs. • On soils with low to moderate erosion hazard ratings (0-25% slope), maintain 60% ground cover. • On soils with very high erosion hazard ratings (greater than 25% slope), maintain 70% ground cover. • In near stream zones for perennial streams and seasonal streams or seasonally wet areas with riparian and meadow features, approximately 90% ground cover will be required. Large patches of bare ground will be mulched. If soil cover requirements cannot be met when lifting brush to reduce fuel loading other methods of eliminating brush will be considered such as mastication. *BMPs: 1.9, 1.13, 1.20, 1.21, 2.13, 5.4, 6.2, 6.3, 7.2, 7.3*	Aquatics Biologist, Fuels Officer, Hydrologist, Soil Scientist, TSA, Vegetation Officer, Wildlife Biologist *** Contract Prep, Contract Layout, Implementation, Post Implementation
10	All Units	Aquatic Resources, Fuels Mgmt., Sensitive Plants, Soils/ Hydrology, Vegetation Mgmt., Wildlife	Pile Burning/ Underburn	**Hand Pile and Burn:** No hand piling then burning of the piles would occur within 25 feet of riparian vegetation and stream channels, or meadows. **Burn Prescriptions in RCA:** • Design prescribed fire treatments to minimize disturbance of ground cover and riparian vegetation in RCAs. • Avoid direct lighting within riparian vegetation; prescribed fires may back into riparian vegetation areas. No ignitions for underburning would occur within 25 feet of riparian vegetation. • No hand piling or burning would occur within 25 feet from riparian vegetation and stream channels. • The fire prescription should target the lowest possible soil temperature increase for the shortest duration of time. • The fire prescription should target the highest duff layer moisture levels consistent with the fuel	Aquatics Biologist, Botanist, Fuels Officer, Hydrologist, Soil Scientist, TSA, Vegetation Officer, Wildlife Biologist *** Contract Prep, Contract Layout, Implementation, Post Implementation

				reduction and soil cover objectives. Ground cover levels should be adequate to control erosion. Implementation should meet duff retention across 20% of the unit. The burn plan should identify mitigation measures to minimize the spread of fire into riparian vegetation. • Avoid burning road drainage outlets, such as waterbars and rolling dips, and out sloped roads within RCAs. If such areas do get burned, consider mitigations measures such as mulching to reduce soil erosion. • If fire from underburning threatens to burn riparian vegetation and aquatic habitat, and/or the above -ground cover objectives will not be achieved, then the fire would be extinguished using hand suppression techniques. If fire escapes prescription and becomes a threat, Minimum Impact Suppression Tactics (MIST) fire control techniques will be applied in riparian areas. • No ignition or pile burning within 50 feet of wetland features and springs. This distance may need to be increased depending on ground conditions to prevent burning through wetland features. *BMPs: 1.8, 1.19, 2.13, 6.2, 6.3, 7.2, 7.3*	
11	All Units	Aquatic Resources, Soils/ Hydrology	All	**Erosion Prevention Measures in activity areas**: Erosion control work is inspected prior to the end of the normal operating season to determine whether the work is adequate. Additional measures will be applied when needed to meet water quality standards. **Erosion Control Plan:** All phases of project implementation will include a BMP checklist that will be developed based on the measures described in the Randolph WUI Fuels Reduction Project CE Appendix B, Standard Management Requirements (SMRs). The project SMRs are considered to be a part of this erosion control plan, and will be kept on site during implementation and be incorporated into an applicable check list. Any ground disturbing activities that are determined to fall outside of the exemption from the requirement to prepare an erosion control plan, will have additional information including maps, illustrations, and wet weather operations as deemed necessary and described under BMP 2.13 of the Erosion Control Handbook. **Vegetation Management**: All necessary erosion control measures for mechanical operations will be implemented as soon as possible after operations cease in the area and prior to runoff producing rainfall. All erosion prevention measures will be implemented by October 15th. For activities continuing beyond October 15th, erosion control measures on active sites will be implemented at the first opportunity.	Hydrologist, Road Engineer, Soil Scientist, TSA, Vegetation Officer *** Contract Prep, Contract Layout, Implementation, Post Implementation

				BMPs: 1.1, 1.3, 1.13, 1.19, 1.20, 1.21, 2.4 2.8, 2.13, 7.2, 7.3 56	